

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A power output apparatus for a hybrid vehicle, the apparatus comprising:

a first inverter;

a second inverter;

a 2Y motor having a first three-phase motor coil and a second three-phase motor coil functioning as stators, energization of said first and second three-phase motor coils being controlled respectively by said first and second inverters;

a power supply connected between a first neutral point of said first three-phase motor coil and a second neutral point of said second three-phase motor coil;

a capacitor element provided on an input side of said first and second inverters; and

a control unit controlling said first or second inverter to allow a precharge operation for precharging said capacitor element to be ~~performed~~ performed;

a relay disposed between said first and second three-phase coils to selectively supply current to the first and second three-phase coils according to a signal from the control unit, wherein said control unit controls said first and second inverters to allow a voltage step-up operation for increasing a power-supply voltage which is output from said power supply to a predetermined level, as well as a drive operation for driving said 2Y motor to be performed after said precharge operation is completed, and

said 2Y motor starts an internal combustion engine of the hybrid vehicle.

2. (Canceled)

3. (Original) The power output apparatus according to claim 1, wherein
said precharge operation refers to an operation of increasing a power-supply voltage which is output from said power supply to allow an output voltage of said capacitor element to be at least a reference value.
4. (Original) The power output apparatus according to claim 1, wherein
said first inverter includes three arms provided correspondingly to said first three-phase motor coil,
said second inverter includes three arms provided correspondingly to said second three-phase motor coil, and
said precharge operation is performed by using all phase coils of said first three-phase motor coil and said three arms of said first inverter or using all phase coils of said second three-phase motor coil and said three arms of said second inverter.
5. (Original) The power output apparatus according to claim 4, wherein
said control unit controls said three arms of said first inverter or said second inverter to allow said precharge operation to be performed.
6. (Original) The power output apparatus according to claim 1, wherein
said first inverter includes three arms provided correspondingly to said first three-phase motor coil,
said second inverter includes three arms provided correspondingly to said second three-phase motor coil, and
said precharge operation is performed by using a first motor coil selected from phase coils of said first three-phase motor coil and a first arm corresponding to said first motor coil and selected from said three arms of said first inverter, or using a second motor coil selected from phase coils of said second three-phase motor coil and a second arm

corresponding to said second motor coil and selected from said three arms of said second inverter.

7. (Original) The power output apparatus according to claim 6, wherein said control unit controls said first or second arm to allow said precharge operation to be performed.

8. (Currently Amended) The power output apparatus according to claim 1, ~~further comprising~~wherein the relay includes:

a first switch provided between said first neutral point and said power supply;

a second switch provided between said first neutral point and said power supply and in parallel with said first switch; and

a resistor element connected between said first neutral point and said first switch, wherein

said control unit renders said first and second switches ON and OFF respectively upon start of said precharge operation and renders said first and second switches OFF and ON respectively when it is ascertained that said power supply is connected to said first and second neutral points

9. (Original) The power output apparatus according to claim 1, wherein after said precharge operation is completed, said control unit displays on a display unit an indication that preparations for driving said power output apparatus are completed

10. (Original) The power output apparatus according to claim 1, wherein said 2Y motor generates electric power from a rotational force from an internal combustion engine.

11. (Original) The power output apparatus according to claim 10, further comprising:

an electric motor different from said 2Y motor; and
a planetary gear to which said 2Y motor, said electric motor and said internal combustion engine are connected.

12. (Original) The power output apparatus according to claim 11, further comprising a third inverter driving said electric motor, wherein
when said control unit drives said first and second inverters to allow said 2Y motor to function as an electric generator, said control unit drives said third inverter to drive said electric motor by electric power generated by said 2Y motor.

13. (Original) The power output apparatus according to claim 12, wherein
said control unit disconnects said power supply from said first and second neutral points.

14. (Original) A motor driving method for driving a 2Y motor coupled to an internal combustion engine of a hybrid vehicle and an electric motor coupled to drive wheels of said hybrid vehicle, comprising:

a first step of precharging a capacitor element provided on an input side of first and second inverters controlling energization of first and second three-phase motor coils respectively that are included in said 2Y motor; and

a second step of driving said 2Y motor and said electric motor while further charging said capacitor element after said precharging is completed.

15. (Original) The motor driving method according to claim 14, wherein
said first step includes
a first sub-step of applying a power-supply voltage which is output from a power supply to said capacitor element via said first or second inverter, and
a second sub-step of increasing said power-supply voltage to charge said capacitor element.

16. (Original) The motor driving method according to claim 15, wherein
said first sub-step includes
a step A of connecting said power supply, via a resistor element, between a
first neutral point of said first three-phase motor coil and a second neutral point of said
second three-phase motor coil,
a step B of ascertaining that said power supply is connected between said first
neutral point and said second neutral point, and
a step C of directly connecting said power supply between said first neutral
point and said second neutral point after said ascertaining is completed.

17. (Original) The motor driving method according to claim 16, wherein
it is determined in said step B that a terminal-to-terminal voltage of said
capacitor element is at least said power-supply voltage.

18. (Original) The motor driving method according to claim 15, wherein
said first inverter includes three arms provided correspondingly to said first
three-phase motor coil,
said second inverter includes three arms provided correspondingly to said
second three-phase motor coil, and
in said second sub-step, said three arms of said first or second inverter are
simultaneously driven to increase said power-supply voltage.

19. (Original) The motor driving method according to claim 15, wherein
said first inverter includes three arms provided correspondingly to said first
three-phase motor coil,
said second inverter includes three arms provided correspondingly to said
second three-phase motor coil, and

in said second sub-step, one arm selected from said three arms of said first or second inverter is driven to increase said power-supply voltage.

20. (Original) The motor driving method according to claim 14, further comprising a third step of displaying on a display unit, after said precharging is completed, an indication that preparations for driving said 2Y motor and/or said electric motor are completed.

21. (Original) The motor driving method according to claim 14, wherein said second step includes a third sub-step of increasing a power-supply voltage which is output from a power supply to further charge said capacitor element,

a fourth sub-step of calculating a first power of said 2Y motor and a second power of said electric motor,

a fifth sub-step of determining whether or not the sum of said calculated first power and said calculated second power is equal to zero, and

a sixth sub-step of disconnecting, when said sum is equal to zero, said power supply from respective neutral points (M1, M2) of said first and second three-phase coils included in said 2Y motor.

22. (Original) The motor driving method according to claim 21, wherein said second step includes a seventh sub-step of driving said 2Y motor as an electric generator, and an eighth sub-step of driving said electric motor by electric power generated by said 2Y motor.

23. (Original) The motor driving method according to claim 21, wherein

said second step includes

a ninth sub-step of driving, when said sum is unequal to zero, said 2Y motor as an electric motor, by a direct-current voltage from said capacitor element, and

a tenth sub-step of driving, when said sum is unequal to zero, said 2Y motor as an electric generator while decreasing the direct-current voltage from said capacitor element to charge said power supply.

24. (Original) A computer-readable recording medium having a program recorded thereon for allowing a computer to execute drive control of a 2Y motor coupled to an internal combustion engine of a hybrid vehicle and an electric motor coupled to drive wheels of said hybrid vehicle, said computer following said program to execute:

a first step of precharging a capacitor element provided on an input side of first and second inverters controlling energization of first and second three-phase motor coils respectively that are included in said 2Y motor; and

a second step of driving said 2Y motor and said electric motor while further charging said capacitor element after said precharging is completed.

25. (Original) The computer-readable recording medium according to claim 24, wherein

said first step includes

a first sub-step of applying a power-supply voltage which is output from a power supply to said capacitor element via said first or second inverter, and

a second sub-step of increasing said power-supply voltage to charge said capacitor element.

26. (Original) The computer-readable recording medium according to claim 25, wherein

said first sub-step includes

a step A of connecting said power supply, via a resistor element, between a first neutral point of said first three-phase motor coil and a second neutral point of said second three-phase motor coil,

a step B of ascertaining that said power supply is connected between said first neutral point and said second neutral point, and

a step C of directly connecting said power supply between said first neutral point and said second neutral point after said ascertaining is completed.

27. (Original) The computer-readable recording medium according to claim 26, wherein

it is determined in said step B that a terminal-to-terminal voltage of said capacitor element is at least said power-supply voltage.

28. (Original) The computer-readable recording medium according to claim 25, wherein

said first inverter includes three arms provided correspondingly to said first three-phase motor coil,

said second inverter includes three arms provided correspondingly to said second three-phase motor coil, and

in said second sub-step of said program, said three arms of said first or second inverter are simultaneously driven to increase said power-supply voltage.

29. (Original) The computer-readable recording medium according to claim 25, wherein

said first inverter includes three arms provided correspondingly to said first three-phase motor coil,

said second inverter includes three arms provided correspondingly to said second three-phase motor coil, and

in said second sub-step of said program, one arm selected from said three arms of said first or second inverter is driven to increase said power-supply voltage.

30. (Original) The computer-readable recording medium according to claim 24, said computer following said program to further execute a third step of displaying on a display unit, after said precharging is completed, an indication that preparations for driving said 2Y motor and/or said electric motor are completed.

31. (Original) The computer-readable recording medium according to claim 24, wherein

said second step includes

a third sub-step of increasing a power-supply voltage which is output from a power supply to further charge said capacitor element,

a fourth sub-step of calculating a first power of said 2Y motor and a second power of said electric motor,

a fifth sub-step of determining whether or not the sum of said calculated first power and said calculated second power is equal to zero, and

a sixth sub-step of disconnecting, when said sum is equal to zero, said power supply from respective neutral points of said first and second three-phase coils included in said 2Y motor.

32. (Original) The computer-readable recording medium according to claim 31, wherein

said second step includes

a seventh sub-step of driving said 2Y motor as an electric generator, and

an eighth sub-step of driving said electric motor by electric power generated by said 2Y motor.

33. (Original) The computer-readable recording medium according to claim 31, wherein

said second step includes

a ninth sub-step of driving, when said sum is unequal to zero, said 2Y motor as an electric motor, by a direct-current voltage from said capacitor element, and

a tenth sub-step of driving, when said sum is unequal to zero, said 2Y motor as an electric generator while decreasing the direct-current voltage from said capacitor element to charge said power supply.